Greenley (J. B.)

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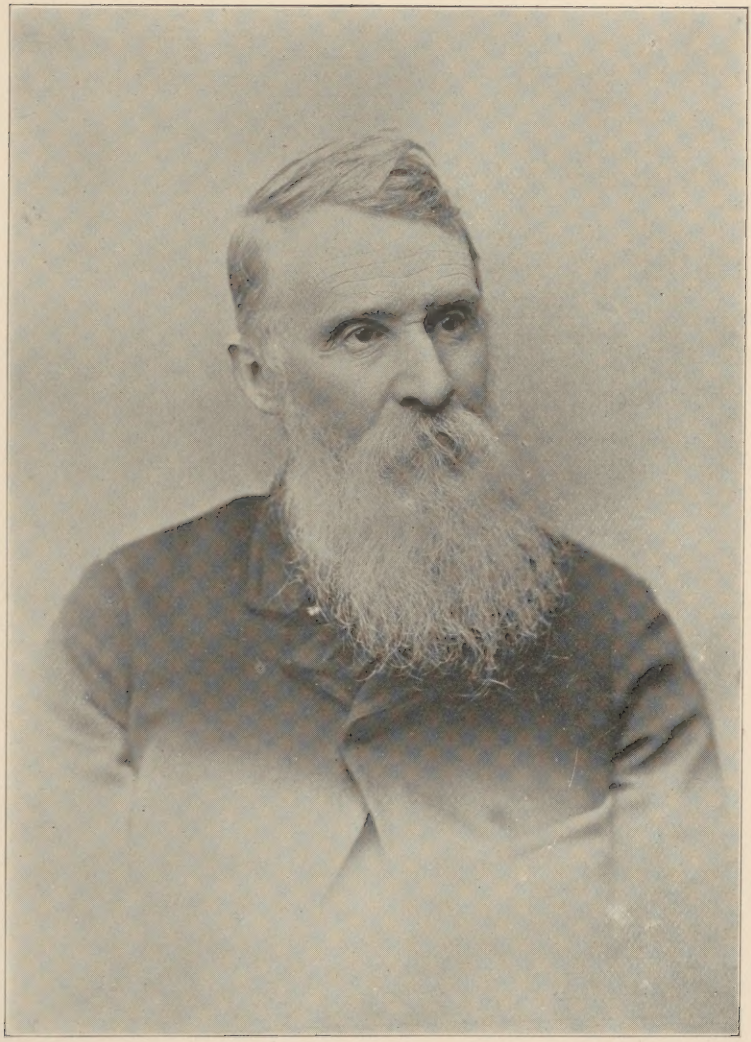

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

THE EVOLUTION AND DESCENT OF MAN.*

BY T. B. GREENLEY, M. D.

The theory of evolution and descent of man from the inferior animals, first plausibly elaborated by Charles Darwin, is now regarded by many scientists as being thoroughly established as a fact based upon scientific demonstration. Unfortunately a great many men who stand as scientific inquirers are often too apt to embrace new theories and place them on the rôle of scientific facts without due and proper investigation. In this particular we have illustrations within the last decade of several instances. We might mention the Burgeon method of treating consumption. Many contended the gas was absorbed by the bowels and conveyed to the lungs, where it acted as a germicide. As a demonstration of the fact it was claimed that it was exhaled from the lungs and made palpable to the olfactories.

Then we had as a remedial agent, as a cure for the same disease, the cabinet vacuum and compressed-air treatment, and finally came the world's wonder, in the way of scientific treatment of this disease, the magical Koch's lymph. Then, a while before this last, we had the rejuvenating liquid of Brown-Séquard. We all recollect with what avidity many medical men who are regarded as scientific embraced these different theories of treating disease; especially was this the case with the two latter methods. We might ask the reason why this was

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so. The answer is very easy. The theories were not properly investigated, and too much reliance was placed on the high standing of the authors of the theories. The world-wide excitement produced by the announcement of the discovery by Koch of his tuberculin was the result of the want of proper investigation. Had a moment's thought been given the matter no such excitement would have ensued. I think, as yet, it has not been demonstrated that a prophylactic against a disease will act as a remedy for the same. It is claimed that an attenuated culture of the tubercular bacilli, on the Pasteur plan, will prevent the development of tuberculosis. And, as Koch prepared his lymph from a culture of the bacilli and glycerine, it could not act as a remedial agent for the disease, as it is regarded as being the cause. We have illustrations of this principle in Jenner's and Pasteur's prophylaxes against variola and hydrophobia.

It is hardly worth while at this late date to speak of the absurdity of the vulgar remedies of Burgeon and Brown-Séquard. I fully exemplified their unreasonable characters, together with Koch's lymph, in three several papers before this Society, during their prominence as remedial agents.

We will now return to the consideration of the subject we propose to discuss. We remarked in the outset that we believe that a great many men had embraced the evolution and descent theory without due investigation of the subject, simply taking for granted its truthfulness from the plausible presentation of the theory by its eminent authors, as in the cases above alluded to.

In carefully reading Darwin, Haeckel, and others we are frequently reminded of plausible objections that might be urged in contravention to the truthfulness of the theory. Some of these objections I wish to present in as cursory a manner as possible.

First, as to the origin of life. Darwin, being a member of the English Church, claimed to be a Christian, and hence acknowledged the existence of a Deity. He believed that God created the principles of living matter in the forms of the lowest beings. He is not certain whether it consisted of a single form or more, but it belonged to the protozoa, or single-celled animals. From this structureless, simple, and almost inanimate form, in the author's opinion, all the living and extinct species, both vegetable and animal, that now or ever did exist, had their origin. His explanation of the mode as to how such great changes by evolution resulted in the various specific forms consists in the action of

four causes: (1) Environment or surroundings; (2) natural selection; (3) heredity, and (4) sexual selection. Environment of the animal produced certain variations in its form and structure as a matter of accommodation, which natural selection preserved for its benefit in the next offspring. Heredity not only preserved what advantage it derived from its ancestor, but also what it received by environment, which was transmitted to its descendant. So it seems that natural selection worked conjointly with heredity for the benefit of the animal. Sexual selection seemed to have remained dormant till after many species were evolved. It did not seem to manifest itself until the grasshopper and some other insects endeavored to attract the attention of the opposite sex by stridulation.

Darwin and his confrères had very hard work to get the evolutionary machinery in operation among the lower forms of life. In the first place it would seem somewhat miraculous to suppose a protozoon, or ameba, a single-celled atom of protoplasm of microscopic size, adhering to the rocks at the bottom of the sea, to differentiate as to its environment, whether or not there might be any advantage to be derived by any change of structure. And as they are non-sexual in character, and propagated themselves by subdivision, there could be no influence exerted by heredity, and of course sexual selection could not be brought into play. In this instance natural selection was also left with nothing to do. But of course when all these aids to evolution were compelled to lie dormant the great laws of nature were brought to bear to help out the difficulty. Evolutionists have great faith in and place great reliance on the wonderful powers of nature in assisting them in the evolution problem.

Darwin, however, does not make any attempt to explain how evolution got a start among the lower forms of life; nor does any other author on the subject as far as I can learn. He would not have had such a difficult matter if some higher form of life had been created for the commencement of his theory, say some of the vertebrates. Haeckel, a strong evolutionist, being an atheist, denies that the first forms of life were created, but originated by spontaneous generation. He wished to dispense of all miraculous idea in creation by a supreme being, and started life by spontaneous action. Through the agency of chemical reaction, or calorific force, he instilled life into dead inorganic matter, to wit, carbon, and produced the moneron. All this was accomplished through the agency of the laws of nature, seeing the necessity of life in the world. As this

marvelous performance was enacted during the Azoic or Laurentian period, when the earth was under water, it is presumed there was some difficulty in the action of calorific or a chemical force. Haeckel does not undertake to explain how environment, natural selection, etc., reacted on these lower forms of life by which they generated higher species and genera. But he, like all evolutionists, relied greatly on the blind laws of nature to accomplish any thing they could not account for.

According to the authors of genealogy our ancestors, after assuming the dignity of the vertebrates in the form of fish, when they could disport themselves independently in the capacious sea, were compelled to become amphibians and drag themselves through the filthy mud and slime of the shore in order to procure their food, and subsequently to still lower their dignity by the degradation of crawling on the ground in the shape of the reptile.

It was a wise provision of nature at that unhappy period of their existence that the sorrowful idea was not revealed to them that their descendants at some time far distant in the future should add further insult and degradation by *bruising* with their heels the heads of their great ancestors.

It is not positively stated whether or not in our transmigration, during our aquatic life, we came through the shark or the whale, but perhaps the former, as the work of evolution would have been too great to have taken us up to the whale and then graded us back to a small amphibian. But as we have evoluted backward and forward so often from little things to big things, it is a hard matter to keep pace with the line of our descent. It may be that we did come through the whale, as he has rudimentary legs, and were passed on through the crocodile to the land where we were evoluted down to the turtle. It would seem, however, upon a fair view of the case, that as the whale is a warm-blooded animal, breathes through lungs, and a mammal with rudimentary legs, that it would have been less work for evolution if we had been gradually modified down to the quadrupeds, just a little above the marsupials, and thereby saved the great labor of going down from these animals to the lowest type of the mammalia, to wit, the small rodent, and then gradually, by variations and natural selection, to where we should have arrived by descending from the whale.

The question now arises, did we ascend through the rodents, or gnawing animals, from the turtle to the marsupials? But this could not be so, as the rodents are true mammals, while the former are not. It is the

general opinion of evolutionists that we came through the bat, if no other bird species. Not long since, on looking at a fine large ostrich, which stood up so tall and strong with his 180 pounds weight, I thought it would have been more creditable if we had passed through him on our way up; and the wings could have been evoluted back more easily than the bat's, as they are only rudimentary. But had this been so, we should have had to suffer reduction in size before we reached the opossum. Having reached the mammalia proper, we now have easier times in the upward climb.

The pathway is comparatively easy through the dog, lemur, and simiadæ, or monkeys, with the exception of some enormous tails that we had to contend with. We have now arrived pretty high up on the ladder of evolution, and are now coming in contact with our near kin, the anthropoid apes. Now, irony aside, we wish to make some inquiry as to the physical differences, as well as mental capacities, between the brutes which are claimed to be our immediate ancestors and ourselves. Darwin claims that the gorilla is our immediate ancestor, but Haeckel is well-mannered enough to grant that, perhaps, a man-ape existed between the gorilla and man proper. If we examine the skeleton of a gorilla we find many differences between it and that of man. A profile view of the skull teaches us at once that it is the head of a brute. Compared to that of the lowest type of man it is much more prognathous (jaw projecting, or forward jaw), his face approaching a horizontal line with that of the forehead of a dog. His lower jaws are much larger, and his canine teeth are very long and powerful, projecting like tusks above and below, beyond the roots of their fellows, room (diastema) being left for the projection between them and the adjoining teeth. The lower teeth are longer than the upper. The supra-orbital processes are enormous in size, and in the living animal give the appearance of a hood. The concavity or depression in their rear is very great, and leaves a very contracted space within the skull for the development of the anterior lobes of the cerebrum.

It is admitted by Huxley that the capacity of the skull of the lowest type of man is double that of the highest gorilla. According to Morton, the smallest cranium observed in any race of man measured sixty-three cubic inches, while the most capacious gorilla's skull measured thirty-four and one half cubic inches. Huxley, although a firm believer in the descent of man theory, admits a child's brain of four years old is twice as large as that of an adult gorilla.

The spinous processes of the cervical vertebra are very long, affording space for the attachment of a large mass of muscular tissue, giving the animal the appearance of being destitute of a neck. The vertebral column is much longer than that of man, being about double in size, as well as much longer, equaling about twenty-five per cent. There are thirteen dorsal and four lumbar vertebræ, with thirteen ribs on each side. The arms are also much longer, and when in erect position the hands reach below the knees. The feet and hands are much longer and larger than man's. The great toe comes out from the foot at the base of the metatarsal bone of the second toe, but stands out from the foot something like the thumb. In height the gorilla averages nearly that of man. When this animal walks in the erect position it has a shuffling gait. It moves in a stooping posture with its hands on the ground. It assists itself in progression by thrusting its body forward while supporting its weight on the hands, giving its body a half swinging motion between them. His physical power is much greater than that of man, and he attacks his enemies with savage ferocity.

In appearance this animal is the most brutal and savage of all animals, and really has but little resemblance to a man. Although he looks more like a black bear than any animal I know of, yet the bear has the advantage in being less savage in appearance.

It is claimed by evolutionists that anatomically there is no difference in the structure of the brain of the gorilla and that of man except in size. They also claim that the vocal organs are very similar.

We have now, in as succinct a manner as possible, examined the physical differences between man and the gorilla, the highest species of the anthropoid apes, and the one claimed to be the progenitor of man. Now, is it not a wonder, that with all the great differences possessed by this animal compared to man, that any evolutionist could for a moment conclude, when their laws of descent are tested, that man could have been his direct descendant or offspring?

As before stated, it is claimed that species are generated one by another by gradual and very small variations, and that if any sudden leap or variation takes place it would be in violation of this law; therefore, if we really descended from the gorilla, under the application of evolution laws, it must have required many thousands of years to have wrought the necessary change, leaving a gap requiring the production of many differentiated creatures to fill it up before man could have appeared.

In the great evolution theory it is a wonder some of the authors have not been astonished, while evolving a higher order of being out of a lower, that the mental manifestations did not keep pace with the physical development. That in some insect species the intelligent manifestations were much greater than in even some of the mammals; for instance, the ant, one of the smallest insects. What wonderful intelligence in their industrial avocations; what instinct they manifest in providing for the welfare of their young and in laying up supplies for themselves! We also see the same display of intelligence in many other, though larger, insects and animals. For instance, the bee in the mathematical construction of its home, and the little oriole in the building of its nest.

Do we witness any such manifestation of intelligence on the part of the high apes in the construction of their houses or beds? Although they possess, you might say, quadrumanous and ambidextrous organs with great muscular strength, yet we see nothing in the way of ingenuity that they perform, notwithstanding they have a brain similar to that of man. They do not even construct houses to shelter or protect their young. If they have any beds they are composed of a few limbs and twigs of trees rudely placed together. There are many animals away below them in the scale of being which build for themselves comfortable places of abode, where they take care of their young. We also see genius displayed in the actions of the crow and parrot. Has any one given any account of the mental action of any of the higher apes equal to that displayed by the parrot? In fact there are few of the mammalia but are more intelligent than the so-called anthropoid apes.

Darwin speaks of the great difference in this particular between these animals and the lowest type of man. He does not pretend to give any rational cause of this great difference, but thinks there exists a great deal of inherent intelligence in these creatures but yet in a dormant state.

It would seem strange that natural selection has done so much to develop barbaric man and nothing for the ape. According to the time claimed necessary to evolve a man out of an ape one would have supposed, in these millions of generations, the ape, through natural selection, would have had some favorable influence exerted on him in the way of civilization, when it has done so much for man in a much shorter time. The most barbarous tribes of men can be civilized if properly

managed, but so far our immediate ancestors, the gorillas, are utterly untamable. A young or old gorilla can live but a short time in a state of confinement with the kindest treatment.

Darwin regards his inability to talk as one great hindrance to his civilization. Then the question may be asked, why don't he talk, as he possesses, anatomically, similar vocal and mental organs to those of man? How did man learn to talk? He had no instructor, nor did he receive the gift of speech by heredity or natural selection! Time will not permit me to discuss the merits of these questions, but only to ask them as being pertinent to the subject under consideration.

The gorilla stands at the head of the anthropoid apes, as it respects size, strength, and ferocity, but in our estimation, if variation and natural selection had in view the evolution of a man from the apes, their work was carried too far when they got to the gorilla, and therefore must believe that the authors of the theory of descent made a mistake when they selected that animal to represent man's immediate ancestor. If they had chosen the chimpanzee, the ape just below him in size and less ferocious, they would have come nearer representing man in several particulars. The head of this animal is much nearer in form to that of man than is the gorilla's. The supra-orbital arches are not near so prominent, and the vault of the skull not near so flat. His whole skeleton, as to size, approaches more nearly to that of man than does the skeleton of the gorilla. He is much more pleasant to look at and much more easily tamed. This description, as compared to man, is also applicable to the gibbon of the lower anthropoids. This animal moves in the upright position with greater resemblance to the movements of man than any of the anthropoid apes. When it walks on all fours it spreads its palms flat on the ground, differing in this respect from that of any of its higher kinfolks. This animal is also gentle, has a much more pleasant aspect of face, and is much more easily domesticated than any of the genus to which it belongs.

As before remarked, under these considerations the question might be asked, did not evolution, under the guidance of natural selection, carry the thing too far when it developed the terrible brute, the gorilla, for the progenitor of man? Or have the great authors of the descent theory made a mistake in selecting that animal in place of one lower in the scale, as they term it, to represent the great family of man? But they could not have easily done this, at least with propriety, because the ugly brute would have been left on their hands without a place in

nature. It would have been a happy thing if the evolution and descent theory had been gotten up before the discovery of the gorilla, which only took place about half a century ago; whereas Darwin published his work about two decades afterward, 1871. This theory had, however, been partially outlined previously by Lamark, Wallace, and others, but Darwin, as before observed, was the first to systemize and give it character by his great genius as an author. But it is presumed, however, if he had been more familiar with the characteristics, both physically and mentally, of the gorilla, and had ever seen one alive, he would not have claimed him as his great ancestor, and would have selected the more amiable and pleasant-faced chimpanzee or gibbon instead.

From these remarks it may be claimed that it is a misfortune that the gorilla was ever evolved, or that he was ever discovered, as in either instance we could have looked backward without being so terribly shocked at our great progenitor.

Now we will examine some of the differences between man in his primary condition, and the gorilla, taking it for granted that we are his offspring. The gorilla, as is well known, is a powerful, savage brute, always ready to defend himself against his enemies. He is possessed with natural means of defense as well as attack, and his strength is equal to his courage. He inhabited, no doubt, at the time man made his appearance on the earth, a wilderness or forest, as he does now, where many other animals of prey existed. We must now take for granted the theory of Darwin to be true, that one pair of gorillas were the prime ancestors of man, or if this idea is erroneous, and all gorillas became man's parents, there would be no gorillas on the earth now.

Therefore we must believe in the monistic origin of our race, or disbelieve the gorilla to be our progenitor. We must overlook the strange phenomena that evolution picked out one pair of gorillas for our special benefit, and that natural selection kept them in line until the baby *homo* was born. Now this is the point we have been aiming to get to. We want to ascertain as nearly as the circumstances will allow, how that newly-developed baby fared in that wilderness among so many wild animals that would have liked him for food. Of course, if he was a real, human baby, he was devoid of gorilla hair-covering, and as his parents had no beds nor clothing of any kind by which he could be protected, he must have suffered from the cold nights, to say nothing of mosquitoes and other insects. We can readily perceive how badly that baby needed a blanket. Now the question arises, how was that child

taken care of by its mother, or did she treat it as young gorillas are usually treated by the mother. We learn that the female gorilla carries her young in front by its clinging around the waist. In this manner she jumps from limb to limb through the trees. Now, we would ask, what would become of one of our babies if it was compelled to endure such exposure, and undertake to perform such gymnastic exercises as hanging to its mother while she practiced the circus art among the branches of the trees? We can readily answer, it would die either from croup or bronchitis from exposure, anemia produced by the loss of blood from insect bites, probably before gymnasia commenced; or, if by any chance it endured to try that performance, it would have been killed in the commencement of the exercise by falling to the ground. Of course we could not expect the mother to know that she had a human baby to care for, as she had always been used to gorilla children, but no doubt she was surprised to see a child without hair.

It is very easy, right here, to see what a hard, up-hill business both that mother and baby had to get along through the world until the child got big enough to take care of itself.

Now there is danger for the boy still ahead. His mother being used to seeing gorilla children weaned and allowed to shift for themselves at two years old, she may have thought this new baby could do as others at that age and turned him loose. The first thing in the way of danger that might have occurred, the little fellow glad of a little liberty may step aside out of his mother's sight, and being like the children of the species *homo* in general, possessed of great curiosity, may fall into a pit, or down a cliff, endeavoring perhaps to reach some red poisonous berries, and get killed; or come in contact with some animal, perhaps an uncle or aunt gorilla, and they, not knowing he was just evolved, destroy him. It may be said the dangers surrounding him in that wild forest were innumerable. A young gorilla of two years old is able to defend itself against a man unarmed, whereas our babies at that age are perfectly helpless.

Hartman and Ballou give accounts of capturing young gorillas about two years old, where they made great resistance. As a rule when taken captive, even at this very early age, they are hard to tame, and generally live but a short time.

Now, it is a well-known fact that a new-born human infant is the most dependent and helpless of all young animals. It needs and demands greater care and attention on the part of the mother than any of the

inferior animals. It only has instinct sufficient to nurse when the nipple of the mother is placed in its mouth; whereas the lower animals, by instinct, immediately search for and find the teats of their mother. These animals are able to walk immediately after birth, whereas the baby is generally a year old before he walks. He is not only physically the most helpless of all young animals, but mentally so. His brain at two years old is nearly twice as large as the gorilla's at maturity, but still mental faculties are just beginning to be developed. In speaking of the difference between the mental condition of the new-born child and that of the young of inferior animals, Dr. Hall, of New York, remarks: "While the human pair were denied the power of transferring to the child bodily their originally inspired and acquired knowledge, they were given in lieu of it the gift of speech, and the capacity and desire to teach the young, and in this way only to transmit their intelligence from one generation to another. While the lower animals have been deprived of this capacity or desire to teach their young, and in lieu have received the power of transmitting their own knowledge bodily with the physical and vital organism, the young are equally incapable of being instructed by the parents except to a very limited extent by observation and imitation, but depend wholly upon the supply of knowledge which is born with them, and which we have for the want of a better word called instinct." He also says that the child is born with an almost unlimited capacity of being taught. This statement very sensibly explains the difference between the helpless infant, both physical and mental, and that of the young animal.

Then, to revert to the helpless young *homo* we left in the wilds of Africa with its gorilla mother just letting him take charge of himself among all the dangers surrounding him, what chance for life, a living, or for education can we see before him? Then, in the event of an accident by which he should lose his life, or if his mother should fail to give birth to a sister for his mate, then the starting point for the species *homo* would have been destroyed, and evolution would have been compelled to try its hand again on another pair of apes. It is something almost unaccountable that natural selection, which required thousands of generations to evolve one species from another of a lower form of animals, should always finish up with a single pair for the new species to start on.

While this work was going on among the turtles and other animals which produced large broods of young at a time, one would suppose

that there would have been some difficulty on the part of natural selection to select from the gang the pair belonging to the new species leading up in the line of ascent toward man. This is one point I think Mr. Darwin failed to explain. It would seem that with this view of the matter the main object of evolution was to develop new species, and not so much to improve and care for the old, as Mr. Darwin asserts that it was necessary for the general good that the generation of the old should still go on; in all probability to serve as food for the new. But it would appear to the thinking mind wonderful how natural selection managed to develop only a single pair of animals for each species to commence with, and at the same time was enabled to preserve them intact so as to generate males and females in sexual proportions. When we reflect that a single pair, without a failure in tens of thousands of instances, should inaugurate the genesis of a new species, it strikes the mind as something miraculous. But our great scientific authors seem to be satisfied that these apparently almost impossible results were brought about by natural selection, guided by the great laws of nature.

We might cite some of the dangers the young pairs were in before they commenced to generate their progeny for a new species, as the baby *homo* was in his infancy, but owing to the magnitude of such a task and the want of time, we will only allude to a sample of a low form. For instance, when the turtle, on the eve of turning to a bird, had laid her eggs in the usual way, two of which were to hatch out young birds, suppose that just before this event was to occur some egg-sucking varmint had come along and devoured them. Such an accident would have been a great misfortune, as that might have been the last nest of eggs that mother was to lay, thereby stopping evolution and preventing the generation of the bird genus. This would have been a great disaster to the world, and could have only been remedied by natural selection trying its hand on another turtle.

Now, as before remarked, when we come to think of the ten thousand pairs of the various species of animals which were the progenitors of their respective species, all happily passing through the manifold dangers which surrounded them and their offspring, it is a wonderful contemplation, especially so when we are asked to believe that it all resulted under the guidance and direction of blind chance, or, as it is called, the laws of nature.

[TO BE CONTINUED.]